

2/2 013

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0109119

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INHIBITORY EFFECTS OF  
MELANOIDINS ON BETA AMYLASE SEEM TO BE RELATED TO THE POLYANION NATURE  
OF THESE COMPS. BETA AMYLASE ACTIVITY IN ACID MEDIA WAS STRONGLY  
REDUCED BY OTHER ACIDIC HIGH MOL. WT. COMPS., INCLUDING HEPARIN,  
TANNIN, AND PROTEIN DEAMINATED BY THE VAN SLYKE METHOD. INHIBITION OF  
MALT-BETA AMYLASE BY HIGH MOL. WT. ACIDIC COMPS. SEEMS TO DECREASE WITH  
INCREASING CONC N OF H PRIME POSITIVE. FACILITY: VORONEZH  
TECHNOL. INST., VORONEZH, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--EFFECT OF AGING ON SYNTHESIS OF VITAMINS IN THE RUMEN OF CALVES -U-  
AUTHOR-(03)-ZHEREBTSOV, P.I., VRKIN, V.F., KHODYREV, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--VESTN. SEL'SKOKHOZ. NAUKI (MOSCOW) 1970, 15(1), 80-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--VITAMIN, DAIRY CATTLE, SYNTHETIC FOOD, ORGANIC SYNTHESIS,  
BIOLOGIC AGING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3009/0172 STEP NO--UR/9091/70/015/001/0080/0087  
CIRC ACCESSION NO--AP0139035

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139035

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN AN EFFORT TO REPLACE MILK IN THE NUTRITION OF YOUNG CATTLE BY A SUITABLE IMITATION FEED AN EXPTL. STUDY USING CALVES FROM 1 TO 6 MONTHS OF AGE WAS CARRIED OUT. THEIR RUMEN WAS INHABITED BY A MICROFLORA ABLE TO SYNTHESIZE THIAMINE, RIBOFLAVINE, AND VITAMIN B SUB12. THE SYNTHESIS OF VITAMIN B SUB12 WAS OBSD. IN CALVES AT THE AGE OF 1 MONTH, THAT OF RIBOFLAVINE IN THOSE AT THE AGE OF 2-3 MONTHS. THE SYNTHESIS OF THIAMINE IN THE RUMEN OF THE EXPTL. ANIMALS SET IN BEGINNING WITH THE 4TH MONTH OF AGE. FACILITY: MOSK. SEL'SKOKHOZ. AKAD. IM. TIMIRYAZEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 576.858

ZHEREBTSOVA, E. N.

"The Imperfection of Viruses"

Abstract: This survey presents literature data on the imperfection of viruses, discussing reasons and manifestations of imperfection, its prevalence among viruses, and the biological significance of this phenomenon. The problems of compensation for imperfection between imperfect viruses and virus-helpers are also analyzed.

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1/2 014 UNCLASSIFIED PROCESSING DATE--090CT70  
TITLE--COULOMB STRIPPING IN A WIDE ENERGY RANGE OF EMITTED PROTONS --U-

AUTHOR--(05)--LITVIN, V.F., NEMILOV, YU.A., KRASNOV, L.V., GRIDNEV, K.A.,  
ZHEREBTSOVA, K.I.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(2), 273-6

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITED NUCLEUS, NICKEL ISOTOPE, DEUTERON BOMBARDMENT,  
EXCITATION ENERGY, ELECTRON TRANSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1980/0380

STEP NO--UR/0367/70/011/002/0273/0276

CIRC ACCESSION NO--AP0048652

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--090CT70

CIRC ACCESSION NO--AP0048652

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROSCOPIC FACTORS WERE OBTAINED FOR TRANSITIONS TO LEVELS OF THE PRIME63 NI NUCLEUS BY USING EXCITATION ENERGIES IS SMALLER THAN 5 MEV. THE SPECTROSCOPIC FACTORS FOR TRANSITIONS OBTAINED BY USING EXCITATION ENERGIES UP TO 3 MEV COINCIDE WITH THE VALUES OBTAINED FROM EXPTS. AT "OVER BARRIER" D ENERGIES (15 MEV). AT HIGHER EXCITATION ENERGIES (L EQUALS 2, E SUBD EQUALS 4.096 MEV), ANOMALOUSLY LARGE SPECTROSCOPIC FACTORS ARE OBTAINED.  
FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

ZHERNAVKOV, V. F.

PECULIARITIES IN TIME PERCEPTION IN SIMULATED AND REAL FLIGHT  
 [Article by S. S. Alimzhanov, Ye. A. Deryabin, and V. F. Zhernavkov, Moscow, *Kosmicheskaya Biologiya i Meditsina*, Vol. 6, No. 2, March-April 1972, pp. 86-89, submitted for publication 15 March 1971]

UDC 612.821.8:529.623.7

SPAS 56030  
 18 May 72

**Abstract:** This paper presents experimental data accumulated concerning the peculiarities of time perception during real and simulated flights. The level of distortion and the accuracy in reproducing stipulated time periods can be attributed to the different degree of nervous and emotional stress of the pilot (space pilot). This in turn depends on the complexity and the hazard of the task to be performed, that is, on flight conditions. During a real flight under normal meteorological conditions, as well as during a simulated flight, the stipulated time intervals are reproduced in an extended form. This is due to the presence of working dominant foci in the cortex of the large hemisphere. During flights in a turbulent atmosphere and at extremely low altitudes in a turbulent atmosphere the processes in the brain cortex are depressed by a generalized excitation induced by emotional stress. This results in shortening of the reproduced time intervals.

One of the important conditions ensuring effective performance of a flight mission is the capacity of the pilot or cosmonaut for correctly orienting himself in time. During training the pilot or cosmonaut improves this capacity, enabling him to switch his attention correctly to those objects which are most important at the particular moment.

It is well known that emotional excitation exerts a considerable influence on the time perception process (M. F. Ponomarev, D. G. Elkin, A. A. Leshov and V. I. Lebedev, D. D. Sherman, and others). Accordingly, researchers in the field of aerospace medicine were faced with the problem of the

USSR

UDC 616.282.3-092.9-08:616-092

ZHERNAVKOV, V. F., and UDALOV, Yu. F., Moscow

"Experimental Impairment of Vestibulomotor Tolerance and Its Therapy"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14,  
No 4, Jul/Aug 70, pp 55-59

Abstract: Metabolism was studied in human volunteers as a possible cause of shifts in vestibular tolerance observed during airplane flights. Metabolism was disrupted by administering amino acids (lysine, tryptophan, glutamic acid), the antimetabolite pyridoxine, and inhibitors of pyridoxalic enzymes (iprazid, cycloserine). Various indices of vestibulomotor function deteriorated including threshold, latent period, and duration of the reaction to electrical stimulation of the vestibular apparatus. Following administration of pyridoxal-5-phosphate, all of these indices improved. Experimentally induced shifts in protein metabolism (increased rate, imbalance of amino acids), deficiency of pyridoxine, and action of pyridoxalic enzymes thus intensify vestibulomotor reactions. This fact suggests that the shifts in protein and vitamin balance that occur while flying may alter the reactivity of the vestibular analyzer and play a role in the pathogenesis of vestibular disturbances. Since pyridoxal-5-phosphate helps to normalize these shifts, it appears to be a useful therapeutic aid.

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MEDICINE  
Aerospace Medicine

USSR

UDC 612.921:358.4

KUZNETSOV, V. G. and ZHERNAVKOV, V. E.

"Effect of Some Flight Factors on the Perception of Time and Muscular Exertions"

Moscow, Voenno-Meditsinskiy Zhurnal, No 2, 1971, pp 60-64

Abstract: Studies on pilots during actual flight and on a special apparatus simulating the conditions and dynamics of flight on a fighter plane showed that variable overloads (frequency 0.5 to 1.5 hz and amplitude 0.25 to 0.44 units) and high ambient temperatures (38 to 45°C for 4 hours) markedly distort the perception of time and muscular exertions. For example, 4-, 6-, and 8-second intervals were misjudged by 26, 27, and 20%, respectively. High temperatures (in a thermal chamber) produced similar changes. In the effort to duplicate the exertions involved in handling the control stick after exposure to variable overloads, the subjects misjudged by as much as 46.5%. During actual flight (involving exposure to turbulent atmosphere and high ambient temperatures) the perception of small time intervals was distorted even more because of the additional influence of emotional stress.

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Vector Studies

USSR

UDC 576.895.4

KOCHKAREVA, A. V., ZAGNIBORODOVA, Ye. N., ZHERNOVOV, I. V., ZAYTSEVA, V. I., SHILENKO, V. I., ZABEGALOVA, M. N., AVAKOV, S. M., TASHLIYEV, A. O., BEL'SKAYA, G. S., and VAZHEV, A. P., Republic Antiplague Station, Institute of Zoology, Academy of Sciences Turkmen SSR

"Regional Distribution of Ixodid Ticks in Turkmenia"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Seriya Biologicheskikh Nauk, No 5, 1971, pp 36-42

Abstract: The 31 species and subspecies of Ixodid ticks (of the total of 49 living in Turkmenia) gathered from 699 geographic points and included in the collection of the station are analyzed for the distribution of their natural habitats and their geological and botanic living conditions. *Hyalomma asiaticum asiaticum* proliferates in large numbers in all four regions (clay desert, sandy desert, cultivated river valleys, and southern mountains). *H. detritum* an. *anatolicum*, *H. an. excavatum*, and *H. pl. plumbeum* thrive mainly in cultivated areas. The most numerous species are *H. as. asiaticum* and *H. numidiana turanica* living in sandy desert and *Ornithodoros tartakovskyi* living in clay desert. *Ixodes redikorzevi*, *Haemaphysalis punctata*, *Rhipicephalus schulzei*, and *R. leporis* were recorded for the first time in the republic.

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USSR

UDC 911.3:616.981.452(575.4)

BURLACHENKO, T. A., PUNSKIY, Ye. Ye., ZHERNOVOV, I. V., and ZAGNIBORODOVA, Ye. N.

"Characteristics of the Plague Epizootic Among Rodents in Turkmenia (1964-1969)"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of Works), Saratov, No 4(14), 1970, pp 110-123 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.118) by B. Dobrokhotov.

Translation: The plague epizootic among rodents in various natural regions of Turkmenia was recorded annually for the last six years: in the western and northwestern part in 1964-1966, in the southwestern part in 1966-1968, in the northeastern part in 1965-1969, in the southeastern part in 1966-1968, in the northern part in 1966-1969, and in the eastern part in 1969. Territorial and biocenotic characteristics of the foci and the development of the epizootic in each natural region are described. Included are tables of isolation of plague cultures from mammalian and arthropod vectors. The main species of rodents participating in the epizootic is the great gerbil, involvement of redtailed midday gerbils and the yellow suslik led to an increase in the

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- 34 -

USSR

BURLACHENKO, T. A., et al., RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.118)

intensity of the epizootic and to its further spread. Practically all territorial regions of the southern deserts at the borders of Turkmenia are sections of continuous natural focal activity of plague and are not temporary foci. Sites of prolonged retention of plague bacteria in both epizootic and nonepizootic years are stations of rodent survival in which elementary plague foci may be found. Four maps of sites at which plague cultures have been isolated in Turkmenia from 1964 to 1969 are included.

2/2

1/3 031 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--MOTORS AT THE POLISH JUBILEE INDUSTRIAL EXPOSITION -U-  
AUTHOR--ZHERNOVOY, A.P. Z  
COUNTRY OF INFO--POLAND  
SOURCE--TRAKTOR I SEL'SKOZHASHINY, SOVIET MONTHLY, JAN 1970  
DATE PUBLISHED--JAN70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, PROPULSION AND FUELS

TOPIC TAGS--FOREIGN TRADE FAIR, DIESEL ENGINE, MARINE ENGINE, INDUSTRIAL  
PLANT, FUEL INJECTION, MOTOR VEHICLE ENGINE/(U)SW400 DIESEL ENGINE,  
(U)SW680 DIESEL ENGINE, (U)D501 TRACTOR, (U)S320 DIESEL ENGINE, (U)S301  
AIR COOLED ENGINE, (U)S201 AIR COOLED ENGINE, (U)S202 AIR COOLED ENGINE,  
(U)WOLA DIESEL ENGINE, (U)SW680 DIESEL ENGINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1990/0073

STEP NO--UR/0343/70/000/000/0000/0000

CIRC ACCESSION NO--AP0108441

UNCLASSIFIED

2/3 031

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0108441

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. AT THE JUBILEE INDUSTRIAL EXPOSITION DEDICATED TO THE 25TH ANNIVERSARY OF THE POLISH PEOPLE'S REPUBLIC, MOTORS FOR TRACTORS AND AGRICULTURAL MACHINES WERE AMONG THE LARGE NUMBER OF MACHINES AND AGGREGATES DISPLAYED. AT THE PRESENT TIME POLISH INDUSTRY PRODUCES DIESEL MOTORS FROM 3 TO 600 HORSEPOWER, IN NINE BASIC FAMILIES. THE S-201 AND S-202 TWO CYCLE AIR COOLED MOTORS WITH DIRECT FUEL INJECTION FORM ONE STANDARDIZED FAMILY. THE S-301 AND S-301D FOUR CYCLE AIR COOLED MOTORS WITH DIRECT FUEL INJECTION AND VERTICAL POSITIONING OF THE CYLINDERS ARE STANDARDIZED. THE TECHNICAL CHARACTERISTICS OF DIESELS OF THE STANDARDIZED FAMILIES S-201, S-301, AND S-310 ARE GIVEN IN TABLE 1. MOTORS OF THE S-320 FAMILY ARE FOUR CYCLE AND HAVE WATER COOLING AND DIRECT FUEL INJECTION. DIESELS OF THIS FAMILY INCLUDE TWO, THREE AND FOUR CYLINDER MOTORS WITH VERTICAL POSITIONING OF THE CYLINDERS AND A ONE CYLINDER MOTOR WITH HORIZONTAL POSITIONING OF THE CYLINDER. THE S-320 ONE CYLINDER MOTOR IS DESIGNED FOR DRIVING AGRICULTURAL MACHINERY, CEMENT MIXERS, BELT CONVEYORS, BUILDING CRANES, ETC. THE TWO, THREE, AND FOUR CYLINDER MOTORS ARE USED TO DRIVE TRACTORS, COMPRESSORS, ROAD ROLLERS, WATER PUMPS, MOTOR WAGONS, ALTERNATING CURRENT GENERATORS. THE S-323 MOTOR IS INSTALLED IN MAZUR D-501 TRACTORS, WHICH ARE USED IN AGRICULTURE. WITHIN THE LAST FOUR YEARS POLISH INDUSTRY HAS DEVELOPED THE SW-400 FAMILY OF MOTORS. A SIX CYLINDER MOTOR IS THE BASIC MODEL FOR THIS FAMILY, WHICH ALSO INCLUDES MOTORS WITH TWO, THREE AND FOUR CYLINDERS. IN TABLE 3 THE TECHNICAL CHARACTERISTICS OF THREE DIESELS FROM THE SW-400 FAMILY ARE GIVEN.

UNCLASSIFIED

3/3 031

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC. ACCESSION NO--AP0108441

ABSTRACT/EXTRACT--MOTORS OF THE SW-680 FAMILY, WOLA D, V, DV, WOLA H AND OTHER POWERFUL DIESELS PRODUCED BY POLISH MOTOR CONSTRUCTION FACTORIES ARE USED TO DRIVE HEAVY MOTOR VEHICLES, LOCOMOTIVES, MOTOR WAGONS, DRILLING EQUIPMENT, HEAVY EXCAVATORS, PUMPS, VARIOUS KINDS OF NAUTICAL VESSELS SUCH AS RIVER AND MOTOR VESSELS, TUGBOATS, MOTOR BOATS, ETC.

UNCLASSIFIED

USSR

UDC 546.185

YANIK, B., and ZHESHUTKO, V., Chair of Inorganic and Analytical Chemistry,  
Medical Academy Cracow

"Study of the Derivatives of Cyclotriphosphazatrienes. IV. Reaction of  
Phosphazatriene Chlorides With Formamide and Thioformamide"

Leningrad, Zhurnal Obshechey Khimii, Vol 43(105), No 2, Feb 73, pp 274-276

Abstract: A solution of 2.7 g formamide in 50 ml ether is mixed with 3.47 g  
of chlorophosphazatriene in 50 ml ether. The mixture is then refluxed for  
4 hrs, the product -- trimetaphosphiminic acid -- precipitates in the  
process. A similar reaction could be carried out with tri- and tetra-  
chlorophosphazatriene(tetraene) and thioformamide in pyridine to yield  
tri- and tetrametathio phosphiminic acid.

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USSR

UDC 546.185

YANIK, Boleslav, and ZHESHUTKO, Vladimir, Medical Academy, Krakow, Poland

"Studies of Cyclotriphosphazatriene Derivatives. III. Reaction of Phosphazatriene Chlorides With Thiourea and Ammonium Thiocyanate"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 271-273

**Abstract:** Tri- and tetrametathio-phosphiminic acids were synthesized by reacting hexa- and octachlorophosphazatriene with thiourea and ammonium thiocyanate. Trimetathio-phosphiminic acid was reacted with Ag (I), Hg (II) and Fe (III) ions to give the following salts (formulas based on percent metal concentration):  $Ag_3(PN)_3S_6H_3$ ,  $(PN)_3S_6H_3Hg_3H_3S_6(PN)_3$  and  $(PN)_3S_6H_3Fe$ . The acids were studied by IR-spectroscopy on the UR-10 spectrophotometer in arsenic sulfide cells with a 0.02 cm layer at  $3200-650\text{ cm}^{-1}$ . A lithium fluoride prism was used at  $3200-2000\text{ cm}^{-1}$ , and a sodium chloride prism was used at  $2000-650\text{ cm}^{-1}$ . Absorption characteristic of the six-membered P=N ring was observed in the spectra for trimetathio-phosphiminic acid, while a maximum typical of the eight-membered ring was observed for tetrametathio-phosphiminic acid. A weak band characteristic of the -SH group was also observed. The maxima have the same position as in the spectra of acids synthesized by reacting the trimer and tetramer with hydrogen sulfide.

1/1

USSR

SOKOLOV, V. I., ZHESTEREV, V. I., Candidate of Biological Sciences, SERGEYEV, V. A., Doctor of Biological Sciences, TETERINA, A. V., Candidate of Biological Sciences, and KADETOV, V. N., All Union Scientific Research Institute of Veterinary Virology and Microbiology

"Automated Apparatus for Laboratory Cultivation of Animal Cells in Suspension"

Moscow, Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenina, No 8, 1971, pp 40-42

Abstract: An automatically monitored apparatus in which suspensions of animal cells can be cultivated according to all known techniques was designed and built. The apparatus consists of four units: a cultivation block, a gas supply system, a cooling chamber, and a control and recording panel. The cultivation block is a thermostatically controlled water container in which flasks of various sizes and shapes are immersed half-way. Rods, tubes, and needles installed in air-tight stoppers facilitate addition and withdrawal of cells and reagents as well as recording of various parameters. Cells are introduced by means of compressed air and sampled using a vacuum. In the gas supply system, tanks with various gases are attached to a control pannel which selects the appropriate gas and controls its flow between 2  
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USSR

SOKOLOV, V. I., et al., Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokh-  
ozyaystvennykh Nauk imeni V. I. Lenina, No 8, 1971, pp 40-42

and 60 liters per hour. Temperature, pH, and other parameters are automati-  
cally adjusted and recorded. Optical density of the cell suspension is also  
recorded. Prior to each experiment, the apparatus must be thoroughly washed,  
sterilized, assembled, and calibrated. This takes 2.5-3 hours, which are  
subsequently more than regained through the automatic control. In test runs,  
cell growth was better than in the older semi- and nonautomated apparatuses.

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- 15 -

USSR

UDC 532.526+536.24.01

GLAZKOV, V. V., GUSEVA, M. D., and ZHESTKOV, B. A. (Moscow)

"Heat and Mass Transfer in the Turbulent Layer Above Permeable Plates"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 4, 1973, pp 22-31

Abstract: The temperature and concentration fields in the boundary layer above perforated plates are presented, and their relationship is established with the velocity fields given in an article by the authors, published in this journal in 1972. Results are presented of measurements of the thermal properties of the plates and with blowing-in of various coolants; also presented are empirical formulas which determine the values of the heat flux and the temperature of the permeable walls. 5 figures. 1 table.

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USSR

UDC: 532.525.4

GLAZKOV, V. V., GUSEVA, M. D., ZHESTKOV, B. A., Moscow

"Concerning Turbulent Flow Over Permeable Plates"

Moscow, Izv. AN SSSR: Mekhanika Zhidkosti i Gaza, No 4, Jul/Aug 72, pp 38-46

Abstract: The paper presents the results of a study of the velocity fields over perforated plates in a turbulent airflow when various gases are blown in. Empirical formulas are given for constructing the velocity fields in the boundary layer over permeable walls, and the problem of generality of the results is considered. The experiments were done with interchangeable perforated plates forming the upper wall of a model which was placed in a uniform airflow issuing from a rectangular nozzle. The lengthwise distribution of permeability of the plate was selected to give a constant wall temperature. The authors thank V. I. Voroshilov, O. I. Voroshilova, V. G. Kalmykov and V. P. Lukash for taking part in the work.

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USSR

YEPIFANTSEVA, I. V., ZHESTKOV, N. G., ZHUKOV, B. P. and ENTIN, S. B.

"Device for Modeling of Pulse-Frequency Modulation in Automatic Systems"

Otkrytiya Izobreteniya Promyshlennyye Obraztsy Tovarnyye Znaki, No 8, Feb 74,  
pp 142-3

Translation: This is a device for modeling of pulse-frequency modulation in automatic systems, containing an integrator, unit for reproduction of relay characteristics, and direct current voltage source, differing in that in order to expand the functional capabilities of the device, it contains two comparison units, a multiplication unit, and a functional converter, the output of which is connected to the input of the unit for reproduction of relay characteristics, while the inputs are connected to the input signal source and the output of the integrator; to one of the inputs of the latter is connected the direct current voltage supply through the contacts of the output relays of the comparison units, while the other output of the unit for reproduction of relay characteristics is also connected to the first input of the multiplication unit, the second input of which is connected to the input signal source.

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USSR

UDC: 621.317.335.3

ZHESTKOV, V. F.

"Use of a Coaxial Line for Studying the Dielectric and Nonlinear Properties of Ferroelectric Crystals in the  $10^9$ - $10^{10}$  Hz Frequency Band"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 2 (19), pp 129-134 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A386)

Translation: The author proposes a rigorous solution of the problem for a coaxial line with the dielectric specimen across the shorted end. The proposed solution gives the dielectric parameters of the specimen in terms of the characteristics of the field of the standing wave of the line. The solution is derived without restrictions on the frequency of the measurement field or on the radius or dielectric constants of the specimen, which makes it possible to use a coaxial line for studying the dielectric and nonlinear properties of ferroelectric crystals right up to the highest frequencies of the centimeter band. Data are given from preliminary measurements of T-150 capacitor ceramic and  $\text{BaTiO}_3$  polycrystals on a frequency of 9375 MHz. Resumé.

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USSR

UDC 632.95

OVSIKHCHER, M. R., BEZUGLYY, S. F. and ZHESTKOVA, T. Ya.

"Thermomechanical Studies on Pesticides and Wettable Powders Based on Them"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 151-158 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N516 by I. Pil'menshteyn)

Translation: Studies on the thermomechanical properties of pesticides (P) and mixtures thereof with fillers. Introduction of fillers into P elevates the pour point: the higher the absorptivity, the greater the percentage of the filler in a mixture with P. The P are provisionally broken down into 3 groups according to the position of the pour point interval. Each group requires specific fillers and special methods of treatment.

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USSR

UDC 632.95

BEZUGLYY, S. F., OVSISHCHER, M. R., and ZHESTKOVA, T. YA.

"A Combination Method of Preparing Wettable Pesticide Powders"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp 1, Moscow, 1970, pp 297-301 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N415)

Translation: On the basis of analysis of techniques for producing pesticides and wettable powders based on them, it is concluded that it would be feasible to combine a number of stages typical of synthesis of pesticides produced in the form of finely dispersed aqueous suspensions with stages of preparation of the wettable powders based on them. In this connection, the aqueous suspension of the pesticide is cleaned of impurities on filters or centrifuges, put into suspension once more, a surface active agent is added together with auxiliary substances, and also fillers where necessary, and the resultant suspension is then dried in spray driers or in fluidized bed driers. This results in more uniform distribution of the components and in a finely dispersed product which can be pulverized if necessary. Examples are presented of preparation of 80-86% wettable ziram powder, 75% wettable zineb powder and 80% wettable simazine powder.

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- 52 -

USSR

UDC 612.591.1-06:[615.322:582.892+613.36

AFANAS'YEV, B. G., ZHESTOVSKIY, V. A., MAZUROV, K. V., and MAYEVSKIY, K. L.,  
Academy of Military Medicine im. S. M. Kirov, Leningrad.

"Comparison of the Effects of Eleutherococcus and an Acid-Saline Beverage on  
Adaptation to Intermittent Heat"

Moscow, Voprosy Pitaniya, No 1, 1973, pp 3-9

Abstract: Eight young men were exposed to hot air in a thermal chamber (37.7 to 38.5°C and 75 to 80% relative humidity) for 4 hours a day for 9 days. Four of them drank an extract of eleutherococcus (an adaptogen like ginseng, known to be able to increase nonspecific resistance) 12 days before and during the experiment and unlimited amounts of tap water while in the chamber. The other four drank only a concoction of 0.2% citric acid solution, 25% potassium and calcium chloride, and 0.5% sugar. Those who drank the eleutherococcus extract exhibited symptoms of a negative water balance, relative and absolute increase in glucocorticoid and androgenic functions of the adrenal cortex, increased sodium excretion with perspiration, and intensified consumption of oxygen. On the other, drinking the special beverage resulted in the establishment of a balance between the intake and elimination of fluid from the body, lowering of the glucocorticoid and androgenic functions of the adrenal cortex, higher

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USSR

AFANAS'YEV, B. G., et al., Voprosy Pitaniya, No 1, 1973, pp 3-9

sodium retention, and decreased oxygen consumption. All these phenomena increased resistance to heat and accelerated adaptation.

2/2

USSR

UDC 613.36-074

AFANAS'Y, B. G., and ZHESTOVSKIY, V. A., Department of Marine Military Service Hygiene of the Military Medicine Academy imeni S. M. Kirov, Leningrad

"A Suitable Chemical Composition of Thirst-Quenching Beverages Overheating"

Moscow, Voprosy Pitaniya, Vol 30, No 3, May/Jun 1971, pp 3-6

Abstract: The duration of well-being of workers in plants where extreme heat conditions prevail depends to a large extent on their water intake. The purpose of the present study was to propose an appropriate chemical composition for beverages to be consumed by persons living under various tropical climate conditions. One set of experiments was performed with five young people (four men, one woman, 22-30 years of age) who stayed in a desert area for 25 days, with a mean temperature of  $36.3^{\circ}\text{C}$  in the shade,  $76^{\circ}\text{C}$  in the blazing sun, a relative humidity of 13% and a mean air movement of 1.4 m/sec. They were given the following beverages to drink: 1) 0.2% citric acid + 25 mg% KCl + 25 mg%  $\text{CaCl}_2$ ; 2) a 1% solution of cherry plum extract; 3) grain kvass, and 4) drinking water. A second set of experiments was done with eight volunteers (eight men, 23-25 years of age) in a thermal chamber at a temperature of  $38^{\circ}\text{C}$ , and a relative humidity of 70-80% (simulation of tropical conditions). Four of these volunteers received only water to drink, the remaining four received 1/2

USSR

AFANAS'YEV, B. G., and ZHESTOVSKIY, V. A., Voprosy Pitaniya, Vol 30, No 3, May/Jun 1971, pp 3-6

a 0.2% solution of citric acid + 25 mg% KCl + 25 mg%  $\text{CaCl}_2$  + 0.5% sugar, which was varied somewhat after a few days of the experiment. It was man's requirements for organic acids, potassium and calcium salts, and carbohydrates are increased. These requirements undergo changes as the body adapts itself to the heat: the higher the environmental temperature, the greater was the demand for an increase in the concentration of citric acid and salts and a decrease in the sugar concentration of the beverages. The following soft drinks are recommended by the authors: in a desert climate, a 1-2% fruit and berry extract solution or a 0.2% citric acid solution + 25 mg% KCl + 25 mg%  $\text{CaCl}_2$ ; in a hot and humid climate, a 1% fruit and berry extract solution or a 0.1-0.2% solution of citric acid + 12.5 to 25 mg% KCl + 12.5 to 25 mg%  $\text{CaCl}_2$  + 0.25% sugar (or not sugar). It was found to be expedient to cut these concentrations in half during the period of adaptation to the heat.

2/2

- 65 -

USSR

UDC 612.453-06:(6132.591

AFANAS'YEV, B. G. and ZHESTOVSKIY, V. A., Chair of Naval and Hospital Therapy,  
Military Medical Academy ~~Imeni S. M. Kirov~~

"Effects of the Caloric Value of Food on Adrenocortical Functions in Man  
During Adaptation to High Environmental Temperature"

Moscow, Voprosy Pitaniya, Vol 30, No 2, 1971, pp 13-17

Abstract: Eight men aged 22-25 stayed for 6 days in a thermal chamber at a temperature of 34-36°C and a relative humidity of 80%. Six of these subjects were kept on a subcaloric diet (1,800 Kcal per day) while two received a supracaloric diet (4,000 Kcal). Three more subjects stayed outside the chamber in comfortable surroundings (18-20°C, 40-50% relative humidity), subsisting on the subcaloric diet. The function of the adrenal cortex was assessed through determinations of the amount of 17-oxy corticosteroids and 17-keto-steroids excreted with urine; energy expenditure was measured by the Douglas-Haldane method. In subjects kept on the subcaloric diet in the chamber, glucocortical and androgenic activities began to decline on the 5th day and were soon followed by a fall in energy expenditure; this indicated the onset of adaptation. In subjects kept on the supercaloric diet, urinary excretion  
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USSR

AFANAS'YEV, B. G. and ZHESTOVSKIY, V. A., Voprosy Pitaniya, Vol 30, No 2, 1971, pp 13-17

of 17-oxycorticosteroids and energy expenditure remained high throughout the experimental period; this indicated a delay in the onset of adaptation. In subjects kept on the subcaloric diet under comfortable environmental conditions, secretion of androgenic corticosteroids increased while that of glucocorticoids decreased; this indicated an intensification of anabolic processes.

2/2

Acc. Nr: **AP0044039**

Ref. Code: UR 0240

PRIMARY SOURCE: Gigiyena i Sanitariya, 1970, Nr 2, pp 34-38

CHANGES IN THE HUMAN BLOOD SERUM PROTEINS  
UNDER THE EFFECT OF HIGH TEMPERATURE

B. G. Afanasiev, V. A. Zhelezovskiy, I. V. Sillin

Changes in the blood proteins of man under the effect of high temperature and also in nitrous metabolites were determined by using electrophoresis. Continuous exposure to high temperatures was found to modify but slightly the total blood protein and its fractions, irrespective of the calorific value of the food allowance. Thermal action in conjunction with physical load produced material changes of the protein metabolism in the organism's tissues with but insignificant modifications occurring in the protein fractions of the serum. Changes taking place in the blood serum proteins following exposure to high temperature cannot serve as a hygienic test of modifications occurring in the organism.

REEL/FRA  
19770485

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UDC 547.963:612.112.94.014.48

HAIKAZYAN, E. V., MIKHELSON, V. M., and ZHESTYANIKOV, V. D., Laboratory of Radiation Cytology, Institute of Cytology of the Academy of Sciences of the USSR, Leningrad

"The Mechanisms of Action of the Inhibitors of Cell Postradiation Recovery. I. The Caffeine Inhibition of the Rejoining of Radiation-Induced Single-Strand Breaks in Human Lymphocyte DNA"

Leningrad, Tsitologiya, Vol 15, No 7, Jul 1973, pp 881-887

Abstract: Haikazyan, Mikhelson and Zhestyanikov study the mechanism of caffeine on one of the many indisputable examples of post-radiation reparation on a molecular level -- recovery of single strand breaks of DNA in human lymphocytes after the action of ionizing radiation. Caffeine increases the number of chromosomal aberrations of many types after irradiation and acts as inhibitors in post radiation recovery. Ultracentrifuged DNA of human lymphocytes in an alkaline sucrose gradient shows that gamma-irradiation in dosages of 10-30 krads induces reduction of the molecular weight of DNA (from 50 to 4.5 min under a dosage of 20 krads). Sixty-minute incubation of post-irradiated lymphocytes in the sucrose medium at 37°C produces almost half the rejoining of radiation-induced breaks of the DNA and the recovery of the resultant

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USSR

HAIKAZYAN, E. V., et al., Tsitclogiya, Vol 15, No 7, Jul 1973, pp 881-887

molecular weight. The presence of caffeine during incubation in a  $6 \cdot 10^{-3}$  and  $6 \cdot 10^{-4}$  M concentration prevents rejoining of the breaks; the reparation of the inhibiting effect of caffeine rises with the increase of its concentration. Graphs 2-4 indicate caffeine concentration effects on the above post-irradiation recovery of single strand DNA in the cells observed.

2/2

- 30 -

USSR

UDC 576.095.14:577.391

VIZDALOVA, M., YANOVSKAYA, Ye., and ZHESTYANIKOV, V. D., Laboratory of Bacteriophage Biophysics, Institute of Biophysics, Czechoslovak Academy of Sciences, Brno, and Laboratory of Radiation Cytology, Academy of Sciences USSR, Leningrad

"Postirradiation Recovery of Cells. III. Survival of Escherichia coli in the Presence of Dark Repair Inhibitors Under Various Growth Conditions After UV- and X-Ray Irradiation"

Leningrad, Tsitologiya, Vol 14, No 1, 1972, pp 113-120

Abstract: After irradiation with X-rays and ultraviolet light, the maximum survival of E. coli containing 5-bromouracil in their DNA is significantly decreased. The sensitization factors at LD<sub>50</sub>-LD<sub>99</sub> are 2.4-1.6 in the complete medium at 44°C and 3.0-2.0 in the minimum M-9 medium. However, when the cells are grown in the complete medium at 19 and 37°C, the radiosensitization effect of 5-bromouracil is insignificant: the sensitization factors are 1.0-0.9 and 1.0-1.2 at the respective temperatures after UV irradiation and 1.3-1.2 and 1.7-1.5 after X-ray irradiation. When the postirradiation growth proceeds in the complete medium containing 0.3% caffeine, the survival of the bacteria is somewhat reduced at 44°C but unchanged at 19 and 37°C. Acriflavine added to the nutrient media decreases the survival of UV- and X-ray-irradiated bacteria

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- 75 -

USSR

VIZDALOVA, M., et al., Tsitologiya, Vol 14, No 1, 1972, pp 113-120

under all growth conditions. It is concluded that the repair of the damaged cell division mechanism, which normally takes place in the complete medium at 44°C and in the minimum medium, is inhibited in the presence of 5-brom-ouracil, caffeine, and acriflavine.

2/2

USSR

UDC[537.226+537.311.33]:538

VARSHCHAK, M. F., ZHETBAYEV, A. K., and KAIPOV, D. K.

"Temperature Dependence of Mössbauer Spectrum Parameters of Natural Magnetite"

Temperaturnaya zavisimost' parametrov messbauerovskogo spektra prirodnoye magnetita (cf. English above), Institute of Nuclear Physics, Academy of Sciences Kazakh SSR, Alma-Ata, 1971, 10 pp, ill., bibliography with three titles, No 3460-71 Dep (from Izh-Fizika, No 2, Feb 72; Abstract No 2YEL430 DEP from authors' abstract)

Translation: Hyperfine structure parameters of the Mössbauer spectrum of natural magnetite  $\text{Fe}_3\text{O}_4$  are studied in the wide temperature range of 80-900°K. The temperature dependence of values of the internal magnetic fields on two sublattices is determined; the Curie temperature is found to be equal to  $(885 \pm 9)^\circ\text{K}$ . It is found that the isomeric shift of the spectrum of sublattice A (tetrahedral) increases by 0.15 mm/sec in the 450-650° K temperature range. Below 113° K the spectrum changes, due to localization of electrons in the tetrahedral sites of the Fe sublattice.

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1/2 020 UNCLASSIFIED PROCESSING DATE—30OCT70  
TITLE—ANALYSIS OF THE RELIABILITY OF LOGIC CIRCUITS —U—  
AUTHOR—(02)—LOKTIONOV, A.A., ZHETBAYEVA, M.P.  
COUNTRY OF INFO—USSR  
SOURCE—AKADEMIIA NAUK KAZAKHSKOI SSR, IZVESTIIA, SERIIA  
FIZIKO-MATEMATICHESKAIA, VOL. 8, MAR. APR. 1970, P. 31-41  
DATE PUBLISHED—70  
SUBJECT AREAS—ELECTRONICS AND ELECTRICAL ENGR., METHODS AND EQUIPMENT  
TOPIC TAGS—CIRCUIT RELIABILITY, LOGIC CIRCUIT, TRIGGER CIRCUIT  
CONTROL MARKING—NO RESTRICTIONS  
DOCUMENT CLASS—UNCLASSIFIED  
PROXY REEL/FRAE—2000/0251 STEP NO—UR/0361/70/008/000/0031/0041  
CIRC ACCESSION NO—AP0124013  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124013

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE RELIABILITY OF LOGIC CIRCUITS WITH SERIES AND PARALLEL CONNECTED ELEMENTS DURING RANDOM MALFUNCTIONS. GENERALIZED FAILURE FORMULAS ARE OBTAINED FOR A TRIGGER WITH A COUNTING INPUT AND DIFFERENTIATING ELEMENTS AT THE OUTPUT, AND AN ESTIMATE IS MADE OF THE RELIABILITY OF THE SERIES CIRCUIT OF THE TRIGGER. THE RESULT IS COMPARED WITH AN ESTIMATE OF THE RELIABILITY OF THIS SAME CIRCUIT OBTAINED BY TAKING CATASTROPHIC FAILURES INTO ACCOUNT.

A THREE INPUT MAJORITY CIRCUIT WITH RANDOM MALFUNCTIONS IS CONSIDERED, AND GENERALIZED FAILURE FORMULAS ARE OBTAINED FOR IT. AN ESTIMATE OF THE RELIABILITY OF A MAJORITY CIRCUIT WITH RANDOM MALFUNCTIONS IS COMPARED WITH AN ESTIMATE OBTAINED WITH ALLOWANCE FOR CATASTROPHIC FAILURES. IT IS FOUND THAT IN THE CASE OF BOTH SERIES AND PARALLEL CONNECTED ELEMENTS SUBSTANTIALLY DIFFERENT RESULTS ARE OBTAINED DEPENDING ON WHETHER THE RELIABILITY IS CALCULATED WITH ALLOWANCE FOR RANDOM MALFUNCTIONS OR CATASTROPHIC FAILURES.

UNCLASSIFIED

USSR

UDC 621.396.6-186.5

SMOLKO, S. G., ZHARYLOV, Ye. V., ZHETLOV, V. N.,

"Electron-Ion Technology of Making Integrated Circuits"

Elektron. prom-st'. Nauchno-tekhn. sb. (The Electronics Industry, Scientific and Technical Collection), 1970, No 1, pp 89-91 (from REh-Radiotekhnika, No 10, Oct 70, Abstract No 19V177)

Translation: The authors discuss the principal areas of work on electron-ion technology ("Elionics") in microelectronics, and the advantages of this technology over other methods, particularly in the making of hybrid microcircuits. Comparative characteristics of masking and elionic technology are given from the standpoint of the equipment and personnel required. It is shown that only the use of elionics will make it possible to solve a number of problems in the future development of microelectronics. Two tables, bibliography of five titles. H. S.

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1/2 009 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--NEW SYNTHESIS OF 4,4 PRIME,DIAMINO,2,2 PRIME,BIPHENYLYLENE  
DISULFIDE -U-  
AUTHOR-(03)-ZHELTOV, A.YA., RODIONOV, V.YA., STEPANOV, B.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 234-5  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC SYNTHESIS, AMINE, PHENYLENE, HETEROCYCLIC SULFUR  
COMPOUND, POLYNUCLEAR HYDROCARBON  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1147 STEP NO--UR/0063/70/015/002/0234/0235  
CIRC ACCESSION NO--AP0123569  
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128569

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. (4,2,ACNH(HO SUB3 S) C SUB6 H  
SUB3) SUB2 WAS CONVERTED INTO THE DI,NA SALT, WHICH WITH 4.5 MOLES POWD.  
PCL SUB5 15 MIN GAVE 60.5PERCENT DISULFONYL CHLORIDE, DECOMPOSED ABOVE  
360DEGREES, ALSO FORMED IN 35PERCENT YIELD WITH CLSO SUB3 H IN 4 HR AT  
80DEGREES, AND AT 20DEGREES OVERNIGHT FROM THE DISULFONIC ACID. THE  
PRODUCT REFLUXED 15 MIN. WITH 55PERCENT HI IN ACOH, THEN HELD 1 DAY  
AFTER FILTRATION, GAVE ON NEUTRALIZATION AT 0DEGREES 43PERCENT 4,4  
PRIME,DIAMINO,2,2 PRIME BIPHENYLYLENE DISULFIDE (I), M. 174-5DEGREES,  
ISOLATED VIA ITS HCL SALT. FACILITY: . MOSK. KHIM. TEKHNOL. INST.  
IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 539.89

GALKIN, A. A., Academician of the Academy of Sciences of the Ukrainian SSR, DEOTYAR', YE. P., ZHEVAGO, S. YE., and POPOVICH, A. I., Donetsk Physico-Technical Institute of the Academy of Sciences of the Ukrainian SSR

"The Fermi Surface of Arsenic under Pressure"

Moscow, Doklady Akademii Nauk SSSR, Fizika, Vol 198, No 3, 1971, pp 563-564

Abstract: The authors study the behavior of the giant quantum oscillations and the ordinary quantum oscillations of ultrasonic wave absorption in arsenic at various pressures. Giant quantum oscillations in arsenic are realized on the fine  $\gamma$ -neck of a hole-type Fermi surface proposed by P. J. Lin and L. M. Falicov. The following are considered: 1) the coefficient of sound absorption  $\alpha$  in a magnetic field at 0, 2, 4, and 6 kilobars and 2) dependence of the period of oscillation of the sound absorption coefficient on pressure. The results show that when the spin-orbital disintegration becomes sufficient to satisfy the  $\lambda < 2(E_c - E_f)$  condition, where  $E$  is the energy of degeneration and  $E_f$  is Fermi energy, hole-type  $\gamma$ -necks disappear. This was observed by the authors with respect to the disappearance of giant quantum oscillations above 3 kilobars. Original article: three figures and seven bibliographic entries.

1/1

ZHEVANDROV, N. D.

NEW INVESTIGATIONS ON MOLECULAR LUMINESCENCE (CONFERENCE IN SUKHUMI)

(Article by Doctor of Physics-Mathematical Sciences N. D. Zhevandrov, Moscow, Vsesoyuznyi Nauchnyi Tsentr, Russian, No 3, March 1977, pp 118-120)

The scientific council on luminescence of the department of general physics and mathematics, Academy of Sciences USSR, jointly with the Sukhumi Physics-Technical Institute, sponsored on 27-30 October 1971, in Sukhumi, the 10th conference on luminescence, attended by about 200 specialists, representing scientific organizations of 22 cities of the country.

The conference was held on a very distinct theme: basic physical problems of molecular luminescence -- ratio of selective and nonselective transitions, transfer of energy of excitation and other related questions. The Soviet Union has developed firm scientific and organizational traditions in this field of physics. The problems of molecular luminescence are examined by several well-known scientific schools in Moscow, Leningrad, Kiev, Minsk and other cities. Conferences on molecular luminescence are held once or twice a year, attracting a large community of scientists, physicists, chemists, biologists, since investigations in this field are of interest to solid state physics, photo- and radiochemistry, molecular biology, quantum electronics, nonlinear optics, chemical kinetics and many other branches of science.

Reports presented at the Sukhumi conference pertained, on the one hand, to further development of the traditional fundamental problems of molecular luminescence and the use of its methods for investigating molecules and their reactions in all aggregate states and, on the other hand, to investigation of new problems of molecular luminescence related to the development of high concentrations of excited states under the influence of various sources of excitation, including lasers (these are problems of nonlinear molecular luminescence, comprising one of the branches of nonlinear optics).

Solving of the first group of problems it is necessary first of all to distinguish the basic works on the migration of energy of electronic excitation of molecules in vapors, solutions, polymers and molecular

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--PHOSPHORESCENCE OF MOLECULAR CRYSTALS DURING PULSED EXCITATION -U-  
AUTHOR--(02)--ZHEVANDROV, N.D., GRIDKOV, V.I. Z  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 557-61  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, CHEMISTRY  
TOPIC TAGS--PULSE EXCITATION, PHOSPHORESCENCE, SINGLE CRYSTAL, BENZENE  
DERIVATIVE, AROMATIC HYDROCARBON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/2025 STEP NO--UR/0048/70/034/003/0557/0561  
CIRC ACCESSION NO--AP0125613  
UNCLASSIFIED

Z/2 026

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125613

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF EXCITATION ENERGY ON THE PHOSPHORESCENCE OF DIBENZYL AND DIPHENYLFLUORANTHENE SINGLE CRYSTALS WAS STUDIED. THE PHOSPHORESCENCE POLARIZATION WAS INDEPENDENT OF THE EXCITATION ENERGY. THE ROLE OF TRIPLET TRIPLET ANNIHILATION AND THE MECHANISM OF ENERGY MIGRATION BETWEEN IDENTICAL MOLS. ARE DISCUSSED. FACILITY: FIZ. INST. IM. LEBEDEVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ENERGY TRANSFER BETWEEN MOLECULES OF VARIOUS IMPURITIES IN A  
NAPHTHALENE LATTICE -U-  
AUTHOR--(02)-ZHEVANDROV, N.D., GORSHKOV, V.K.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 526-6  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--NAPHTHALENE, EXCITATION ENERGY, POLYCRYSTAL, ANTHRACENE,  
ELECTRON DONOR, TEMPERATURE DEPENDENCE, POLYSTYRENE RESIN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--2000/1932 STEP NO--UR/0046/70/034/003/0562/0566  
CIRC ACCESSION NO--AP0125523  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0125523

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE EFFECT OF TEMP. ON THE SINGLET STATE EXCITATION ENERGY TRANSFER BETWEEN DONOR ACCEPTOR PAIR IMPURITIES IN NAPHTHALENE POLY CRYSTALS WAS STUDIED. ANTHRACENE NAPHTHACENE AND ANTHRACENE LUMOGEN A (1:1 MOLAR RATIO) WERE USED AS THE DONOR ACCEPTOR PAIRS AT THE ABS. CONCNS.  $10^{-5}$  PRIME  $5$  NEGATIVE,  $10^{-3}$  PRIME  $3$  NEGATIVE G-G MATRIX. THE CHANGES OF ENERGY TRANSFER FROM THE DONOR TO THE ACCEPTOR AT 290DEGREESK AND 60DEGREESK WERE DETD. BY COMPARING THE INTEGRAL INTENSITY OF LUMINESCENCE OF THE DONOR AND ACCEPTOR INCORPORATED IN AN ADMIXT. INTO THE MATRIX AND EXCITED BY THE LIGHT ABSORBED ONLY BY THE DONOR WITH THE LUMINESCENCE INTENSITY OF BOTH DONOR AND ACCEPTOR INCORPORATED SEP. INTO THE MATRIX AND EXCITED BY THE LIGHT OF APPROPRIATE WAVELENGTH (365 NM FOR THE DONOR AND 436 NM FOR THE ACCEPTORS). WITH DECREASING TEMP., A CONSIDERABLE DECREASE OF THE ENERGY TRANSFER OCCURRED. THE COEFFS. OF THE ENERGY TRANSFER AT 60DEGREESK AND 290DEGREESK WERE CALCD. FOR THE ANTHRACENE NAPHTHACENE PAIR ( $K$  PRIME  $6$  DEGREES  $0.30$ ,  $K$  PRIME  $290$  DEGREES  $0.63$ ), AND FOR THE ANTHRACENE LUMOGEN A PAIR ( $K$  PRIME  $6$  DEGREES  $0.45$ ,  $K$  PRIME  $290$  DEGREES  $0.72$ ). THE TEMP DEPENDENCE OF THE ENERGY TRANSFER BETWEEN THE IMPURITY MOLS. WAS CONTROLLED BY THE INTERACTION OF ELECTRON EXCITATION WITH THE LATTICE VIBRATIONS. NO CHANGE OF THE ENERGY TRANSFER WITH TEMP. WAS OBSD. WHEN THE MEASUREMENTS OF THE SAME DONOR ACCEPTOR PAIRS WERE MADE IN POLYSTYRENE FILM INSTEAD OF NAPHTHALENE, I.E. IN THE ABSENCE OF CRYSTAL STRCTURE.

FACILITY: FIZ. INST. IM. LEBEDEV, MOSCOW, USSR.

UNCLASSIFIED



USSR

UDC 681.12.538.3:538.4

TSIRKUNOV, V. E., and ZHEYZUR, D. B.

"A Study of an Induction Batcher with an Axisymmetrical Magnetic Field for Pipes of Large Cross Section"

Riga, Magnitnaya Gidrodinamika, No 4, Oct-Dec 72, pp 146-148

Abstract: The principles of operation of an induction flow meter of the cylindrical type with internal and external magnetic circuits was examined. A description of the transducer design and block diagram of the flow meter is given. Use of this device to measure flow in large-diameter pipes makes it possible to a significant degree to eliminate the influence of transducer geometry and temperature changes of conductivity on flow meter readings and in the same manner to provide measurement of the volume flow of molten metal. 2 figures, 3 bibliographic references.

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- 67 -

USSR

UDC: 551.596:534.143

GOLUBKOV, A. G., ZHEZHERIN, A. R.

"Investigation of the Time Structure of a Signal Reflected From an Elastic Sphere in Water"

Leningrad, Tr. Leningr. in-t aviats. priborostr. (Works. Leningrad Institute of Aviation Instrument Building), 1972, vyp. 76, pp 24-34 (from RZh-Fizika, No 5, May 73, abstract No 5Zh641 [résumé])

Translation: The authors consider reflection of a short sinusoidal pulse from an elastic sphere. A mathematical description is given of the time function of the emitted signal, and its spectral characteristics are calculated. The time function of the reflected signal is calculated from the function of reflection  $f_{\infty}(ka)$  of an elastic sphere submerged in water. Experimental results are given. The spheres were exposed to a signal with a narrower band than the value used in the calculations. It is shown how the duration of actually emitted pulses affects the possibility of recognizing materials of spheres.

1/1

- 14 -

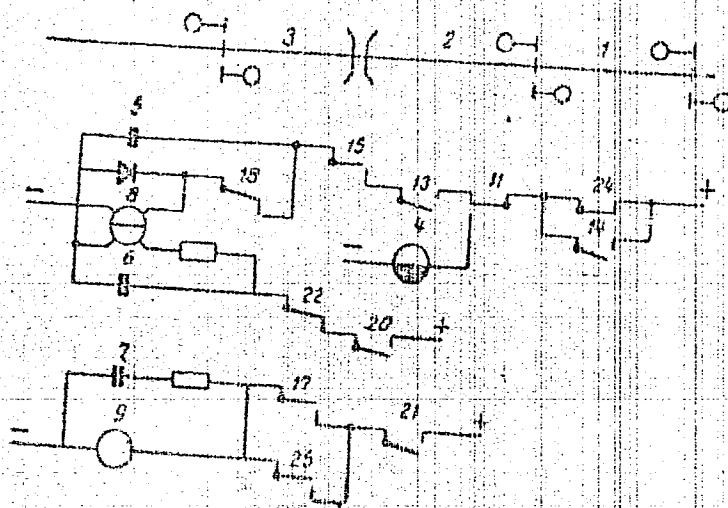
AA9029868

Soviet Inventions Illustrated, Section II Electrical, Derwent,  
3/69

UR 0482

222449 AUTOMATIC CROSS POINT SIGNAL CUTOFF which ensures its reconnection in case of rail damage is based on a circuit comprising track sections 1-3 with auxiliary relay 4 and capacitors 5-7. Relay 8 provides a pulsed charge of capacitor 7, relay 9 is blocking while relay 10 is switching on the crosstie. When sections 1-3 are free, relays 4 & 9 are de-energised, whereas relay 10 is on, and the crossing signals are switched on. Entry of train causes the track relay to break the supply of relay 10.

AA9029868



USSR

UDC: 8.74

ZHEZHEL', N. F., GOL'TSMAN, F. M., ZHEZHEL', Yu. N.

"Interval Evaluation of the Parameters of Geophysical Objects by Linear, Two-Alternative Recognition With Instruction on Model Material"

Leningrad, Vopr. dinamich. teorii rasprostr. seysmich. voln--sbornik (Problems of the Dynamic Theory of Propagation of Seismic Waves--collection of works), vyp. 13, "Nauka", 1973, pp 190-200 (from RZh-Matematika, No 10, Oct 73, abstract No 10V780 [authors' résumé])

Translation: The paper presents a method and program of two-alternative recognition with instruction on model material used for interval evaluation of the parameters of an object. A compact system is introduced for indexing multiparameter, two-alternative recognition to minimize the number of symbols for automatic control of the selection of kinds of problems to be considered. Specific examples of analysis of problems of two-alternative interpretation of magnetic fields showed certain extremum singularities in the degree of divisibility of classes such as the extremum nature of differentiating parameters, or the extremum nature of special measures of divergence with respect to individual receivers on the one hand, while on the other hand these

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USSR

ZHEZHEL', N. F., et al., Vopr. dinamich. teorii rasprostr. seysmich. voln, vyp. 13, "Nauka", 1973, pp 190-200

examples enabled investigation of some governing principles of the behavior of the degree of divergence of classes of fields as dependent both on the number and types of the differentiating parameters, and on the magnitude of the complicating random component. The results show the effectiveness of the proposed method for evaluating the degree of divergence of the types of fields to be distinguished in problems with complex model functions.

2/2

- 36 -

USSR

ZHEZHEL', N. F., GOL'TSMAN, F. M. and ZHEZHEL', YU. N.

"Interval Estimate of Parameters of Geophysical Objects by Linear Two-Alternative Recognition with Learning on Model Material"

Vopr. Dinamich. Teorii Rasprostr. Seysmich. Voln [Problems of the Dynamic Theory of Propagation of Seismic Waves -- Collection of Works], No 13, Leningrad, Nauka Press, 1973, pp 190-200 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V780)

Translation: A method and program are suggested for two-alternative recognition with learning on model material, used for interval estimation of the parameters of an object. Compact indexing of multi-parameter two-alternative recognition is introduced, allowing the minimum number of symbols to be used for automatic control of the selection of the types of problems studied. Specific examples of analysis of problems of two-alternative interpretation of magnetic fields have allowed, on the one hand, establishment of the presence of certain extreme peculiarities of the degree of differentiability of classes such as extremality with respect to values of delineating parameters or extremality of particular measures of divergence with respect to individual receptors and, on the other hand, investigation of certain regularities of the behavior of the degree of divergence of classes of fields as functions of both number and type of delineating parameters, as well as of the

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USSR

ZHEZHEL', N. F., GOL'TSMAN, F. M. and ZHEZHEL', YU. N., Vopr. Dinamich. Teorii Rasprostr. Seysmich. Voln, No 13, Leningrad, Nauka Press, 1973, pp 190-200

value of a random complicating component. The results indicate effectiveness of the method suggested for estimation of the degree of divergence of different types of fields in problems with complex model functions.

Author's view

2/2



USSR

ZHEZHEL', N. F.

"Combination of Discriminant Functions in the Solution of Multiple-Alternative Recognition Problems"

Vopr. Dinamich. Teorii Rasprostr. Seysmich. Voln [Problems of the Dynamic Theory of Propagation of Seismic Waves -- Collection of Works], No 13, Leningrad, Nauka Press, 1973, pp 201-208 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V781)

Translation: A method is suggested for solution of problems of interval estimation of the parameters of an object when there are variable interfering parameters by a combination of two-alternative decision rules. A method is described for estimating the effectiveness of the method of carrying decisions in a set of combinations of results produced using individual decision rules. Numerical examples are presented of the separation of the best combination of discriminant functions for interval estimation of the depth of deposition of an object.

Author's view

1/1

USSR

UDC: 8.74

ZHEZHEL', N. F., GOL'TSMAN, F. M., ZHEZHEL', Yu. N.

"Interval Evaluation of the Parameters of Geophysical Objects by Linear,  
Two-Alternative Recognition With Instruction on Model Material"

Leningrad, Vopr. dinamich. teorii rasprostr. seysmich. voln--sbornik (Problems of the Dynamic Theory of Propagation of Seismic Waves--collection of works), vyp. 13, "Nauka", 1973, pp 190-200 (from RZh-Matematika, No 10, Oct 73, abstract No 10V780 [authors' résumé])

Translation: The paper presents a method and program of two-alternative recognition with instruction on model material used for interval evaluation of the parameters of an object. A compact system is introduced for indexing multiparameter, two-alternative recognition to minimize the number of symbols for automatic control of the selection of kinds of problems to be considered. Specific examples of analysis of problems of two-alternative interpretation of magnetic fields showed certain extremum singularities in the degree of divisibility of classes such as the extremum nature of differentiating parameters, or the extremum nature of special measures of divergence with respect to individual receivers on the one hand, while on the other hand these

1/2

USSR

ZHEZHEL', N. F., et al., Vopr. dinamich. teorii rasprostr. seysmich. voln, vyp. 13, "Nauka", 1973, pp 190-200

examples enabled investigation of some governing principles of the behavior of the degree of divergence of classes of fields as dependent both on the number and types of the differentiating parameters and on the magnitude of the complicating random component. The results show the effectiveness of the proposed method for evaluating the degree of divergence of the types of fields to be distinguished in problems with complex model functions.

2/2

- 36 -

USSR

ZHEZHEL', N. F., GOL'TSMAN, F. M. and ZHEZHEL', YU. N.

"Interval Estimate of Parameters of Geophysical Objects by Linear Two-Alternative Recognition with Learning on Model Material"

Vopr. Dinamich. Teorii Rasprostr. Seysmich. Voln [Problems of the Dynamic Theory of Propagation of Seismic Waves -- Collection of Works], No 13, Leningrad, Nauka Press, 1973, pp 190-200 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V780)

Translation: A method and program are suggested for two-alternative recognition with learning on model material, used for interval estimation of the parameters of an object. Compact indexing of multi-parameter two-alternative recognition is introduced, allowing the minimum number of symbols to be used for automatic control of the selection of the types of problems studied. Specific examples of analysis of problems of two-alternative interpretation of magnetic fields have allowed, on the one hand, establishment of the presence of certain extreme peculiarities of the degree of differentiability of classes such as extremality with respect to values of delineating parameters or extremality of particular measures of divergence with respect to individual receptors and, on the other hand, investigation of certain regularities of the behavior of the degree of divergence of classes of fields as functions of both number and type of delineating parameters, as well as of the

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USSR

ZHEZHEL', N. F., GOL'TSMAN, F. M. and ZHEZHEL', YU. N., Vopr. Dinamich. Teorii Rasprostr. Seysmich. Voln, No 13, Leningrad, Nauka Press, 1973, pp 190-200

value of a random complicating component. The results indicate effectiveness of the method suggested for estimation of the degree of divergence of different types of fields in problems with complex model functions.

Author's view

2/2

USSR

UDC: 576.851.48.007.3:576.8.073.4

NATSIASHVILI, E.YA. and ZEGENTI, E.N., Municipal Disinfection Station and Republic Sanitary-Epidemiological Station, Tbilisi

"Direct and Indirect Fluorescent Antibody Methods for Identifying Enteropathogenic E. coli in Environmental Samples"

Moscow, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2, 1970, pp 136-137

Translation: In addition to the standard method of bacteriological identification, we verified the sensitivity, specificity, and diagnostic value of the direct and indirect fluorescent antibody methods for identification of enteropathogenic E. coli in smears from everyday objects. The first series of experiments involved standard strains - 0111:B4, 026:B6, 055:B5, 086:B7, 0125:B15, 0126:B16, 0127:B8, 145, 0126:B12, 044:B7, 025:B11, 408. E. coli (No 7) S. typhi (No 179) and S. paratyphi A (No 1252), Sh. flexneri (No 1013) and Sh. sonnei (No 1188), and Proteus vulgaris (No 37) cultures were used as heterologous strains. The second series of experiments was conducted under practical conditions, with disinfection of the foci of patients suffering from toxic dyspepsia, enterocolitis, and acute intestinal disturbances. As diagnostic bacterial preparations we used (1) dry conjugates produced by the Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR, for the direct method (complex and type coli serum against

1/4

USSR

NATSIASHVILI, E.YA., et al, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2, 1970, pp 136-137

rabbit gamma-globulins) and (ii) rhodamine-labeled dry bovine albumin to detect (by contrast) nonspecific luminescence in the preparations. One serum served as a control for another. Moreover, with the direct method, we used labeled normal rabbit globulins; with the indirect method, antibrucellosis, antilisteriosis, antitoxoplasmosis, and normal rabbit sera. Enteropathogenic *E. coli* combined with homologous, luminescent serum or homologous nonluminescent and luminescent intermediate serum to produce specifically fluorescing complexes. Against the dark, nonfluorescent background of the preparations, the emerald-green fluorescence of the stained complexes could be seen along with the nonspecific brick-red fluorescence of the heterologous microorganisms and other impurities. There was no fluorescence in preparations from material known to be not infected. A distinct picture was observed with a high dilution of luminescent serum, up to the final titer (1:64-1:128). Introduction into the experiment of rhodamine-labeled bovine albumin had no effect on the color, nature, or degree of specific luminescence. The maximum sensitivity of the direct and indirect methods was 10-20 microbial cells in 1 ml of suspension (provided that the material under study was briefly cultured ahead of time). Agglutination of the tested cultures at high serum titers - 1:3200-1:1600-1:800 - was accompanied by a brilliant emerald-green fluorescence with

2/4

- 25 -

USSR

NATSIASHVILI, E.YA., et al, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2, 1970, pp 136-137

distinct morphological peculiarities of the complexes (+++ or ++), agglutination at a titer of 1:400 by weak green fluorescence of the complexes (++), and agglutination in titers of 1:200-1:100 by barely perceptible dirty green fluorescence of the complexes and indistinct morphology (+). In some cases weak fluorescence of cells (+ or ++) as the react with heterologous or even normal rabbit serum was observed. Weak fluorescence of indeterminate color was also observed with strains lacking clear-cut serological characteristics. Therefore, the reaction was considered positive when there were specifically fluorescing complexes with intense luminescence (+++ or ++) in each visual field. According to this criterion, in experiments with samples taken from everyday objects, the results of the three methods used coincided in 88.5% of the cases, while positive results coincided in 10.5+4%. The frequency of positive results with the direct method was 20.5+5%; which the indirect method, 21.0+5%; with the standard method, 12.5+4%. The direct and indirect methods revealed respectively, 2 and 12 serological types of enteropathogenic E. coli. The differences in the indices of the diagnostic errors observed with both methods were insignificant. The cross reactions that sometimes occurred were weak, and did not interfere with the diagnostic studies. Thus, the direct and indirect fluorescent antibody methods can be used to

3/4



USSR

NATSIASHVILI, E.YA., et al, Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, No 2, 1970, pp 136-137

identify enteropathogenic E. coli in smears from everyday objects. The indirect method is more promising because of the presence of numerous serological types of E. colo.

4/4

USSR

UDC 612.014.42:538.692

GAK, Ye. Z., KOMAROV, G. P., and ZHGENTL, T. G.

"Mechanism of the Biological Effect of Low-Frequency Magnetic Fields"

Kisinev, Elektronnaya Obrabotka Materialov, No 1, 1971, pp 63-66

Abstract: An examination of kinetic effects arising in electrolytes under an alternating magnetic field showed that microscopic vibrations of the entire mass of the liquid should occur with a frequency exceeding the frequency of the magnetic field by a factor of 2. A previous study showed that vortex or laminar motion of the entire mass of an electrolyte occurs in aqueous solutions of electrolytes under the action of an external permanent electric or magnetic field. This motion, which is similar to collective diffusion, leads to a change in the heterogeneous processes occurring in diffusion or mixed kinetics. These phenomena are due to the energy of the electric field since any energy effect of the magnetic field on such systems is practically absent. This study considers the possibility of the rise of similar kinetic effects for the nonstationary case of the effect of a low-frequency magnetic field on electrolytes. The purpose of the study was to verify experimentally the possibility of the effect of such fields on aqueous solutions of electrolytes and on biological objects and to develop a mechanism for the primary

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1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--STATE OF THE AXIAL CYLINDERS AND CHOLINESTERASE ACTIVITY IN A  
MINCED MUSCLE AUTOTRANSPLANT DURING REGENERATION -U-  
AUTHOR--(03)-ZHEGENTI, V.K., DALAKISHVILI, M.L., KUTUBIOZE, R.A.  
COUNTRY OF INFO--USSR  
SOURCE--SOOBESHCH. AKADE. NAUK GRUZ. SSR 1970, 57(1), 229-32  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--AUTOTRANSPLANTATION, CHOLINESTERASE, MUSCLE PHYSIOLOGY, TISSUE  
REGENERATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3003/1043 STEP NO--UR/0251/70/057/001/0229/0232  
CIRC ACCESSION NO--AP0130078  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0130078

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WERE PERFORMED ON FEMALE RABBITS OF VARIOUS AGES. IN AUTOTRANSPLANTS REGENERATION OF MUSCLE ELEMENTS AND THEIR MATURATION OCCURRED AT THE SAME TIME AS AN INCREASE IN THE NO. OF AXIAL CYLINDERS AND AN INCREASE OF CHOLINESTERASE ACTIVITY. AFTER THE REGENERATION ENDED A HIGH ENZYME ACTIVITY IN NERVES WAS FOUND. THE REGENERATES HAD NO PROPRIOCEPTORS. FACILITY: TBILIS. GOS. MED. INST., TBILISI, USSR.

UNCLASSIFIED

USSR

UDC 616.74-053.9

Z  
ZHIGENTI, V. K. (Academician, Georgian Academy of Sciences), DALAK-  
ISHVILI, M. L., and KUTUBIDZE, R. A., Tbilisi State Medical Institute

"Study of the State of Axial Cylinders and Cholinesterase Activity  
During the Regeneration Process in an Autotransplant of Ground  
Muscle"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 57, No 1,  
Jan 70, pp 229-232

Abstract: Experiments were conducted on 60 male rabbits of various  
ages. The animals were killed at different stages of regeneration  
of the autotransplant from ground skeletal muscle. It was deter-  
mined that reproduction of muscular elements begins simultaneously  
with manifestations of cholinesterase activity and the regrowth of  
axial cylinders. The increased number of axial cylinders and in-  
creased cholinesterase activity occur at the time of maturation of  
muscle elements. Nerve endings processing high cholinesterase  
activity may be discovered after the regeneration process of re-  
stored muscle fibers is completed. None of the regenerated tissue  
showed proprioceptors, so it was concluded that the death of re-  
1/2

USSR

ZHGENTI, V. K., et al., Tbilisi, Soobshcheniya Akademii Nauk  
Gruzinskoy, SSR, Vol 57, No 1, Jan 70, pp 229-232.

stored skeletal muscle fibers is due to the failure of tropic  
nervous function, which in turn is due to the absence of the pro-  
prioceptors that determine the motor function of muscle fibers.

2/2

- 61 -

USSR

ZHIGENTSI, V. S.

UDC 517.9:539.3

"Solution of Some Boundary Value Problems for One Class of Prismatic Shells"

Tr. In-t prikl. matem. Tbilissk. un-ta (Works of the Institute of Applied Mathematics, Tbilisi University), 1969, No 2, pp 57-70 (from RZh-Matematika, No 7, Jul 1970, Abstract No 7B473)

Translation: The author considers a circular plate whose thickness varies according to the law  $h=a+br^2$ ,  $r^2=x^2+y^2$ , (1) where  $a, b$  are some constants. Using the methods of the theory of functions of a complex variable and small parameter, the author effectively solves the following boundary value problems: 1) finding the deformed state of a circular plate of variable thickness of the form (1) when the boundary is rigidly fixed and definite loads are given; 2) finding the stressed state when a circular plate of variable thickness of the form (1) is compressed by a constant longitudinal normal force  $P$ . I. N. Vekua's equations in the case where the order approximates  $N = 0$  are taken as the basis. M. Bacheleyshvili.

1/1

USSR

UDC 547.454

ZHIBAYEV, V. N., KUSOV, YU. YU. and KOCHETKOV, N. K. (Corresponding Member of the USSR Academy of Sciences), Institute of Organic Chemistry imeni N. D. Zelinskiy, USSR Academy of Sciences, Moscow

"A New Synthesis of  $\alpha$ -D-Glucopyranosylphosphate-6- $^3\text{H}$ "

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 3, 1978, pp 612-615

Abstract: Tagged derivatives of the glycosulphosphates are widely used in the study of hydrocarbon metabolism and the mechanisms of fermentation reactions. Synthesis of tagged glycosylphosphates at this time is achieved either through fermentation or with chemical methods involving phosphorylation of evenly tagged derivatives of the monosaccharides or of those with specifically positioned tags. But these methods offer serious difficulty both in procedure and in getting an adequate supply of initial material. Continuing their earlier work on the modification of  $\alpha$ -D-glucopyranosylphosphate, the authors devised a convenient method of obtaining the 6-tritiumated derivative of that compound, the radioactive tag being introduced in the last stage of synthesis.  $\text{H}_2^{32}\text{O}$  was chosen as the natural radioactive source for this purpose. This demonstrated method of obtaining the tagged compound in question can evidently be extended to use with other glycosylphosphates as initial material.

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Acc. Nr: **AF0047198**

Ref. Code: **UR0511**

PRIMARY SOURCE: Stomatologiya, 1970, Vol 49, Nr 1, pp31-34

N. A. Rabukhina, I. G. Sirpanova, E. I. Zhibitskaya, A. E. Stamberg — CLINICO-ROENTGENOLOGICAL CHARACTERISTICS OF DEFORMATION OF THE SKULL AND MAXILLODENTAL SYSTEM IN CONGENITAL CLEFTS OF THE PALATE AND ALVEOLAR PROCESS OF THE MAXILLA IN ADULTS

Summary. The paper deals with an analysis of the results of clinico-roentgenological investigation of 51 patients with unilateral and bilateral complete cleft of the hard palate and alveolar process, aged 15—25 years. The authors carried out teleroentgenograms in frontal and lateral projections, enlarged panoramic roentgenograms of the jaws, tomograms of temporomandibular joints. It was found that in clefts of the hard palate and alveolar process the maxilla is displaced backwards and upwards; decrease of its basis is encountered more rarely than narrowing of the alveolar process of the maxilla. In 49 persons there were observed an increased size of the body and branch of the mandible, deformation of temporomandibular joints, whereby in 21 persons — disturbed formation of the base of the skull.

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USSR

UDC: 621.3.035.2

ZHIBITSKAYA, F. B., and YUDIN, B. G.

"Cooling and Homogenizing Structural Graphite Material in a Special Drum"  
Moscow, Tsvetnyye metally, No 3, Mar 72, pp 34-35

**Abstract:** The Moscow Electrode Plant has designed and adopted for use a new technology of cooling and homogenizing pitch coke material for the purpose of making a product with preassigned properties. The new technique involves the use of drums which are air-cooled by vacuum suction (300 mm Hg) at 15,000 m<sup>3</sup>/hr. For fine-grained pitch coke, the drums are additionally cooled with water. The new equipment makes it possible to cool off the pitch coke within 15-20 mins. from 135-145°C to 95-110°C before press forming. Compared to other equipment, the new technique has reduced press forming waste by 50%, eliminated some of the heavy manual labor in grinding and forming, and improved the sanitary conditions in the shop. (1 illustration)

1/1

USSR

UDC: 681.3.061.62

BOBRYSEV, D. N., Candidate of Economic Sciences, RAYKOV, L. G.,  
Candidate of Technical Sciences, ZHIDAKOV, V. P., Engineer

"Experience in Development of a Computer Information System for  
a Scientific Institution"

Moscow, Mekhanizatsiya i Avtomatizatsiya Proizvodstva, No 3,  
1972, pp 36-40

Abstract: The paper describes the technical basis of a com-  
puter information system; in particular, the devices for input  
and output of information, and also the software, which offers  
a set of all kinds of possible programs to facilitate communi-  
cations between users and the system.

1/1

- 63 -

USSR

UDC: 681.888:62

ZHIDENKO, G. L.

"A Device for Ultrasonic Exposure Along the Normal to the Surface of an Article to be Inspected, and for Reception of Ultrasonic Waves"

USSR Author's Certificate No 283715, filed 2 Sep 67, published 10 Dec 70  
(from RZh-Elektronika i yeye Primeneniye, No 6, Jun 71, Abstract No 6A408P)

Translation: A device is proposed which can be used for checking the mechanical properties of materials. The installation provides ultrasonic exposure at a right angle to the surface to be checked. The unit contains a piezoelectric receiver and emitter, a module for orienting the piezoelectric transducer and pickup made in the form of wedges located behind the emitter and in front of the receiver, an oscillator and an electronic measurement device. To ensure accuracy of transmission and reception, the piezoelectric emitter and receiver are fastened to legs at right angles on the corresponding wedges. The angles opposite these legs are chosen from the condition of transformation of transverse and longitudinal oscillations normally with respect to the surfaces of the object being checked and the piezoelectric receiver respectively. Two illustrations. L. K.

1/1

- 59 -

USSR

ZHIDKO, A. A.

UDC 539.3:534.1

"Certain Recommendations for Calculating the Strength of a Bottom Pressed Panel for Shock Wave Load"

V sb. Kratk. tezisy dokl. k Konf. po povrezhdeniyam i ekspluat. nadezhnosti sudovykh konstruktsiy, 1972 (Brief Subjects of Papers at the Conference on Damages and Operational Reliability of Ship Structures, 1972 -- Collection of Works), Vladivostok, 1972, pp 79-82 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V235)

Translation: The action of a dynamic load on a bottom rectangular plate of a high-speed ship reinforced with three rigidity ribs is discussed. The load is distributed uniformly over the surface of the plate but in time it initially begins to rise linearly and then drops exponentially. Equations describing the motion of the panel as a system with two degrees of freedom are obtained with the aid of Lagrange equations. These equations were integrated by the Kutta-Merson method. An example is given of calculating the stresses arising in a plate which agree with experimental data. A. G. Gorshkov.

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- 64 -

USSR

ZHIDKO, A. A.

"Results of Solving the Equations Describing Impact against the Bottom Plate of a High-Speed Ship"

Tr. Gorkovsk. politekhn. in-ta (Works of the Gorkiy Polytechnical Institute), 1970, Vol 25, No 11, pp 85-90 (from RZh-Mekhanika, No 11, Nov 70, Abstract No 11V899)

Translation: This article contains an investigation of impact of a rectangular plate freely supported along the outline and attached in one direction by equally spaced ribs against the surface of a liquid. It is considered that contact takes place simultaneously along the entire surface and the impact load is uniformly distributed. The pressure variation with time during the impact is taken on the basis of experimental research. Being given the form of the deflection of the plate  $W$  (symmetrical deformation)

1/2

USSR

ZHIDKO, A. A., Tr. Gorkovsk. politekhn. in-ta (Works of the Gorkiy Polytechnical Institute), 1970, Vol 25, No 11, pp 85-90

$$W(x, y, t) = [\phi_1(t) \sin^2 \frac{\pi y}{b} + \phi_2(t) \sin \frac{\pi y}{b}] \sin \frac{\pi x}{a}$$

(x, y are the axes of the rectangular coordinate system with the origin at the center of the plate, a and b are the plate dimensions in the plan view, n is the number of ribs,  $\phi_1$  and  $\phi_2$  are the generalized coordinates), a system of two ordinary nonlinear second order differential equations with respect to  $\phi_1$  and  $\phi_2$  is obtained by means of the Lagrange equations of the second type. In further calculations the nonlinear terms considering the effect of the longitudinal forces are dropped. The solution of the system is found numerically on a digital computer. The effect of the build-up time of the external pressure and the rib rigidity on the amplitude of the plate oscillations was studied.

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55

USSR

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ZHIDKO, A. A.

UDC 539.3:534.1

"On the Question of a Shock Wave in a Stamped Structure for a Bottom Covering of a High-Speed Ship"

Tr. Gor'kovsk. politekhn. in-ta (Works of Gor'kiy Polytechnical Institute), 1969, Vol 25, No 2, pp 26-31 (from RZh-Mekhanika, No 5, May 70, Abstract No 5V259)

Translation: The plane shock of a wave into a thin panel of rectangular shape supported on several periodically placed elastic ribs is considered. The panel is a bottom covering of a high-speed ship. The hydroelastic problem is not considered by the author. It is assumed that the external load is uniformly distributed over the surface of the panel and varies sinusoidally with time. The equations of motion of the panel were obtained on the basis of the variational principle of Lagrange considering two generalized coordinates in the expansion for normal bending. A nonlinear system of two ordinary differential equations was obtained in calculating the spacing. A complete solution of the system of equations is not given. A. G. Gorshkov.

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Nuclear Science and Technology

USSR

UDC 548.43 — 31:621.934.5

BUDNIKOV, P. P., KUSHAKOVSKIY, V. I., and ZHIDEKOV, B. A.

"Hot Pressing of Beryllium Oxide and Strength of Fabricated Specimens"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 43, No 9, Sep 70, pp 2090-2093

Abstract: Beryllium oxide powder precalcined in air, then compacted in a metal press mold under a pressure of 500 kg/sq cm, was used as the initial material for hot pressing. The hot pressing was performed in graphite press molds at high temperatures (up to 2000°) in a vacuum of  $10^{-3}$  mm Hg. For hot pressing above 1600° a molybdenum layer was placed between the graphite and powder to prevent the interaction of beryllium oxide with carbon. The carbon content of specimens obtained by hot pressing was 0.12 weight percent and practically the same as that of the initial powder. The pressing pressure and duration has a significant effect on the volume weight of the specimens only at low temperatures. Crystal size increases with increased pressing pressure. X-ray diffraction studies showed the existence of preferred orientation of beryllium oxide crystals in the specimens obtained by hot pressing. The compression strength of the specimens was studied at room temperature. Maximum strength was found in specimens with a crystal size of 3-10 microns.

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1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--TO THE PROBLEM OF THE C YIELDS TO THE INFINITY LIMIT IN THE  
RELATIVISTIC SCHRODINGER EQUATION -U-  
AUTHOR-(03)-ZHIDKOV, E.P., KADYSHEVSKIY, V.G., KATYSHEV, YU.V.

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 2, PP  
191-196  
DATE PUBLISHED-----70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--SCHROEDINGER EQUATION, DIFFERENTIAL EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3003/0323

STEP NO--UR/0646/70/003/002/0191/0196

CIRC ACCESSION NO--AP0129555

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129555

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MATHEMATICAL APPROACH IS DEVELOPED FOR INVESTIGATING THE REGULAR DEGENERATION OF THE SOLUTIONS OF RELATIVISTIC SCHRODINGER EQUATION SHOWN ON MICROFICHE TO THE SOLUTION OF NONRELATIVISTIC ONE SHOWN ON MICROFICHE FOR THE S WAVE CASE. THE PROPOSED METHOD OF SMALL PARAMETER BY HIGHEST DERIVATIVES OF DIFFERENTIAL EQUATION IS APPLIED TO SOME CONCRETE PROBLEMS. FACILITY: OB'YEDINENNYI INSTITUT YADERNYKH ISSLEDOVANIY.

UNCLASSIFIED

Phytology

USSR

UDC 632.931

SAFYANOV, S. P., Candidate of Biological Sciences; ZHIDKOV, V. M., Assistant, Volga Scientific Research Institute of Irrigation Farming, Volgograd Agricultural Institute

"Brown Wheat Rust on Irrigated Fields"

Moscow, Zashchita Rasteniy, No 9, 1971, pp 16-17

Abstract: During 1968-1970 at the "Gornaya Polyana" training farm of Volgograd Agricultural Institute, tests established the dependence of development of brown leaf rust on sowing times. Rates for winter wheat varieties, Bezostaya I, Mironovskaya 808 and Yubileynaya 50 for seven sowing times (from 15 August through 15 October) were established. It was found that the plants are infected with rust in the fall. The disease appears earlier and is more pronounced in wheat planted at early sowing times than in wheat planted in optimum sowing periods. The best sowing time for Mironovskaya 808 is 25 August-25 September, at the time of irrigation, and for Bezostaya I, 5-25 September. The Bezostaya I variety was found to be the most resistant to brown rust, then Yubileynaya 50 and Mironovskaya 808.

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USSR

UDC 621.372.85

ZHIDKOV, V. S., KUKUSH, V. D., PRONENKO, V. I., SAMOYLOVICH, A. I.

"Precision Liquid Short-Circuiting Plungers"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific and Technical Collection), 1970, vyp. 14, pp 110-113 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B175)

Translation: Results are presented from a study of mercury short-circuiting plungers in the centimeter and decimeter wave bands. There are 3 illustrations and a 2-entry bibliography.

1/1

Zhidkov, V. V.

PHYSIOLOGIC AND HYGIENIC EVALUATION OF EXPERIMENTAL SAMPLES  
OF COSMETICS

Article by V. V. Zhidkov, L. S. Felikova, V. P. Gornikov,  
G. A. Shumilina and G. M. Gornikova; Moscow, Aktual'nyye  
Voprosy Kosmicheskoy Biologii i Meditsiny (Current Problems  
in Space Biology and Medicine), 1971, pp. 11-113.

The composition of the lotions L-210, L-211 and the  
elixirs E-320, E-321 was tested in two isolation chamber ex-  
periments lasting 22 and 30 days in which the atmosphere and  
microclimate were carefully controlled.

In the first experiment there were three groups of sub-  
jects, two in each group. Over a 10-day period the first group  
used L-210 lotion for care of the skin and the hairy part of  
the head; elixir E-320 was used for care of the oral cavity.  
Over a 20-day period the second group used L-211 lotion and  
E-321 elixir, whereas the third group performed all hygienic  
procedures using BHS-3 lotion.

In the second experiment, during the first 17 days the  
three subjects used L-210 lotion and E-320 elixir, on the  
next three days -- lotion BHS-3, and during the concluding  
10-day period -- L-211 lotion and E-321 elixir.

Shaving was with a safety razor and "Uspelki" shaving  
creams of the "Pilevo" and "Svobodn" types.

The schedule for using these items of personal hygiene  
was drawn up taking into account the restrictions characteris-  
tic for space flights with a duration from one to three  
months. The mean daily expenditure by one subject was 78 g of  
lotion, 7 g of elixir, and 10 g of shaving cream.

Over a five-month period we checked the possibility of  
long-term storage of L-211 lotion and E-321 elixir in rooms

SPRS 576.499  
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USSR

UDC 51

ZHIDKOV, YU. I., and IVANOV, A. V.

"Optimization of Computer Algorithms With Respect To Time and Accuracy Criteria"

V sb. Avtomatiz. upr. prom. predpriyatiyami (Automated Control of Industrial Enterprises -- Collection of Works), Kiev, "Tekhnika," 1972, pp 33-40 (from RZh-Matematika, No 3, Mar 73, Abstract No 3V603 from authors' abstract)

Translation: The problem of optimizing computer algorithms is considered in two formulations: it is required to assure minimum time for realization of the algorithm with prescribed error in the results; it is required to obtain maximum accuracy of results with fixed solution time. Optimization is achieved by selecting the number of repetitions of the computation cycles for the mathematical functions making up the algorithm.

1/1

USSR

UDC 547.558.1

YAKOVLEVA, YE. A., ISAYEVA, G. G., MAKHMATKHANOV, M. M., ZHURKOVA, A. A.,  
TSVEIKOV, YE. N., KABACHNIK, M. I., and SHATERSHIYEV, A. I., Physicochemical  
Institute imeni L. Ya. Karpov and Institute of Organoelemental Compounds,  
Academy of Sciences USSR

"Partial Rate Factors for Protophilic Deuteroexchange of Dimethylphosphine  
with Liquid Ammonia under Potassium Amide Catalysis"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1626-1631

Abstract: The authors undertook to determine the partial rate factors for  
deuteroexchange with liquid ammonia ( $\text{KNH}_2$  catalyst,  $25^\circ$ ) for all ring positions  
of dimethylphosphine. The deuterated dimethylphosphines were synthesized by the  
reaction of the corresponding organomagnesium compounds with dimethylphosphinic  
chloride and subsequent reduction of the resultant oxides with silicochloro-  
form. The structure of the isomers was confirmed by IR spectra. The partial  
rate factors were calculated on the basis of measurements of the dedeuteration  
reaction rate constants for dimethyl-o-m-, and p-deuterodimethylphosphine.

1/2



USSR

YAKOVLEVA, Ye. A., et al., Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1626-1631

Approximate comparative data were also obtained on the protophilic dedeuteration rates for dimethyl-*m*- and *p*-trideuterotolylphosphines. The results indicated that the  $(\text{CH}_3)_2\text{P}$  group was an electron acceptor in the reaction of protophilic isotopic hydrogen exchange with a strong base.

2/2

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--THEORETICAL INTERPRETATION OF SPIN DENSITY DISTRIBUTION IN SOME  
ALKYL RADICALS -U-  
AUTHOR-(03)-ABRONIN, I.A., ZHIDOMIROV, G.M., BUCHACHENKO, A.L.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. STRUKT. KHIM. 1970, 11(2), 229-34  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ALKYL RADICAL, MOLECULAR ORBITAL, ELECTRON STRUCTURE, PROTON,  
MOLECULAR INTERACTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605018/B10 STEP NO--UR/0192/70/011/002/0229/0234  
CIRC ACCESSION NO--AP0140797

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140797

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPIN D. DISTRIBUTION WAS CALCD. FOR A NO. OF CYCLIC AND ACYCLIC ALIPHATIC RADICALS: ET, CYCLOHEXYL, PIPERIDINOXY, AND BU BY A SIMPLE APPROXN. METHOD OF MO LCAO FOR SIGMA SYSTEMS. THE RADICAL CENTER IN CYCLOHEXYL RADICAL WAS CONFIRMED TO HAVE A PI ELECTRON STRUCTURE. THE AV. VALUES OF THE HYPERFINE INTERACTION CONSTS. ARE INDEPENDENT OF THE INVERSION OF THE CYCLE IN THE CYCLIC RADICALS STUDIED. THE ONE ELECTRON MECHANISM CALCNS. ARE IN AGREEMENT WITH THE OBSD. BASIC PROPERTIES OF THE SPIN D. I.E. THE ANGULAR DEPENDENCE OF THE HYPERFINE INTERACTION CONST., ITS MIN. ON THE GAMMA PROTONS IN THE CYCLIC SYSTEMS, AND MAREOLY LARGE VALUES OF THESE CONSTS. FOR REMOTE PROTONS IN THE SATD. SP PRIME3 SYSTEMS. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

172 012 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--A SIMPLE SEMIEMPIRICAL SCHEME FOR CALCULATING SPIN DENSITY  
DISTRIBUTION IN ORGANIC LIGANDS OF PARAMAGNETIC COMPLEXES -U-  
AUTHOR-(02)-ZHIDOMIROV, G.M., CHUVYLKIN, N.D.

COUNTRY OF INFO--USSR

SOURCE--TEOR. EKSP. KHIM. 1970, 6(2), 254-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC COMPLEX COMPOUND, PYRIDINE, ANILINE, PARAMAGNETISM,  
CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/F09 STEP NO--UK/0379/70/006/002/0254/0258

GIRC ACCESSION NO--AP0140342

2/2 012 UNCLASSIFIED PROCESSING DATE--11DEC70  
CIRC ACCESSION NO--AP0140342  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CLASS OF EQUATIONS WAS USED FOR  
INVESTIGATION OF SPIN D. DISTRIBUTION IN ORG. LIGANDS OF PARAMAGNETIC  
COMPLEXES. CALCNS. WERE CARRIED OUT FOR PYRIDINE, PHNH SUB2, AND ALPHA,  
BETA, AND GAMMA PICOLINE. FACILITY: INST. KHIM. KINET.  
GORENIYA, NOVOSIBIRSK, USSR.

L/2 028 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--ELECTROPHORETIC INVESTIGATION OF LIVER PROTEINS IN ACUTE  
CHOLECYSTITIS -U-  
AUTHOR--(02)--ZHIDOVINOV, G.I., KHRAMOV, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--KHIRURGIYA, 1970, NR 2, PP 37-40  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--LIVER, PROTEIN, ELECTROPHORESIS, INTERNAL ORGAN DISEASE, BLOOD  
CHEMISTRY, GAMMA GLOBULIN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1986/1722 STEP NO--UR/0531/70/000/002/0037/0040  
CIRC ACCESSION NO--AP0103468  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0103488

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ELECTROPHORETIC INVESTIGATION OF LIVER PROTEINS WAS EFFECTED IN 54 PATIENTS SUFFERING FROM ACUTE CHOLECYSTITIS BY THE TECHNIQUE OF AGAR ELECTROPHORESIS. LIVER PROTEINS WERE DIVIDED INTO 5-10 FRACTIONS. THEIR QUANTITATIVE EVALUATION DEMONSTRATED THAT IN COMPLICATED CHOLECYSTITIS THERE IS SEEN A STATISTICALLY SIGNIFICANT REDUCTION OF THE FIFTH AND FOURTH LIVER PROTEIN FRACTIONS, CORRESPONDING TO BLOOD SERUM GAMMA GLOBULINS AND THE APPEARANCE IN SOME CASES OF ADDITIONAL FOUR A AND FOUR V FRACTIONS, CORRESPONDING TO BLOOD SERUM PARAPROTEIN. THE AUTHORS NOTED NO CORRELATION BETWEEN CHANGES IN SERUM AND TISSULAR LIVER PROTEINS.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--POSSIBLE INCREASE IN THE CONTACT DURABILITY OF DRILLING STEEL  
20KHNB3A BY ADDING SURFACE ACTIVE AGENTS TO THE CLAY WASHING MORTAR -U-  
AUTHOR-(05)-KATSOV, K.B., KUSLITSKIY, A.B., KHRUNIK, R.A., ZHIDOVITSEV,  
N.A., GILMAN, K.M.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ.-KHM. MEKH. MATER. 1970, 6(1), 102-3  
DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--ALLOY DESIGNATION, SURFACE ACTIVE AGENT, LOW ALLOY STEEL, WELL  
DRILLING MACHINERY, EXPLORATORY DRILLING, CLAY/(U)20KHNB3A LOW ALLOY  
STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3001/0327

STEP NO--UR/0369/70/006/001/0102/0103

CIRC ACCESSION NO--AP0126083

UNCLASSIFIED



2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126083

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE STUDY WAS CARRIED OUT ON APP. AND WITH THE METHOD AS DESCRIBED BY K. B. K. (1968). THE CLAY SUSPENSION HAD SMALLER THAN OR EQUAL TO 1PERCENT SAND, PH EQUALS 7.5, AND SP. GR. 1.16. SPECIMENS DIAM. 10 MM FROM STEEL 20KH31 AFTER CONVENTIONAL HEAT TREATMENT (AS USED FOR OIL DRILLS) HAD HARDNESS OF SURFACE LAYER HRC 59-60. THE FOLLOWING 4 SURFACE ACTIVE MIXTS. WERE INTRODUCED AT 2PERCENT INTO THE CLAY WASHING MORTAR: (IN PARENTHESES ARE GIVEN NO. OF MILLIONS OF CYCLES UNTIL THE APPEARANCE OF PITTING CORROSION ON THE SURFACE): CLAY WASHING MROTAR ALONE (1.14), SAME PLUS 2PERCENT OXIDIZED PETROLATUM WITH ACID NO. 20 MG OF KOH (1.95), SAME PLUS 2PERCENT PETROLEUM ASPHALT WITH ACID NO. 60 MG KOH (NO PITTING AFTER 10), SAME PLUS 2PERCENT ESTERFIED PETROLEUM ASPHALT WITH ACID NO. 15 MG KOH (NO PITTING AFTER 10), TAP WATER AS A CONTROL (0.93), MACHINE OIL AS CONTROL (11.8). THE ADDN. OF THE PETROLEUM ASPHALT ALONE OR ESTERFIED CAN IMPROVE CONSIDERABLY THE WORK-OF OIL DRILLS.

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